



Pfiesteria spp.
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Species/Syndrome Distribution: Two species of *Pfiesteria* are reported as toxic dinoflagellates. *Pfiesteria piscicida* is known to occur in brackish coastal waters from the Delaware Bay to North Carolina. The other species, *P. shumwayae* has been found from Delaware to Texas. A number of other dinoflagellates have been known to co-bloom with *P. piscicida*. Because of the difficulty in identifying these species, they have been referred to as *Pfiesteria*-like organisms (PLOs). The potential toxicity and identification of these dinoflagellates is currently under investigation.

Toxins/Mode of Action: The chemical structure for the toxins associated with fish kills and fish lesions has not yet been identified. Research is currently being conducted to purify the toxin, identify its structure, and to understand the mode of action of the toxin. One toxin has been found to activate a class of receptors found on immune cells known as P2X7. Activation of these receptors leads to a chronic inflammatory response. The relationship between chronic inflammation and adverse effects observed in people and aquatic life is under investigation. It is likely that toxicity in aquatic species may also involve a direct physical interaction of the *Pfiesteria* organisms.

Human Health Syndrome: Possible Estuary Associated Syndrome (PEAS)

Human health effects of *Pfiesteria piscicida* are neurologic and occur when people come into contact with toxic aerosols and/or toxic water. There is no evidence that *Pfiesteria*-related illnesses are associated with the consumption of finfish, shellfish, or crustaceans such as crabs, lobsters, and shrimp. Symptoms include narcosis, development of sores, headaches, blurred vision, memory loss, confusion, and respiratory problems. To date, other *Pfiesteria*-like organisms (PLOs) have not been shown to cause human illness.